

9.(Previously Amended) The integrated circuit sensor of claim 8, wherein said output stage comprises means for generating said encoded output signal using pulse width modulation, wherein said state information is encoded within said encoded output signal based upon the pulse/pause ratio of said encoded output signal.

C' cont.  
10.(Previously Added) The integrated circuit sensor of claim 8, comprising:  
a magnetic field transducer that generates and provides said input signal.

11.(Previously Added) The integrated circuit sensor of claim 10, wherein said magnetic field transducer comprises a Hall effect transducer.

12.(Previously Added) The integrated circuit sensor of claim 11, comprising a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

13.(Previously Amended) The integrated circuit sensor of claim 12, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

14.(Previously Amended) The integrated circuit sensor of claim 12, comprising  
means for reading updated predetermined threshold values that are input to said integrated circuit sensor through said integrated circuit lead that also receives said encoded output signal, and for storing said updated predetermined threshold values in said memory device, which provides said updated predetermined threshold values to said comparator for comparison against said input signal.

15.(Previously Amended) The integrated circuit sensor of claim 12, wherein said output stage receives said plurality of comparator output signals and encodes state information associated with said plurality of comparator output signals to provide an encoded output signal indicative of said state information associated with said plurality of comparator signals.

16.(Previously Added) An integrated circuit sensor, comprising:

a transducer element that provides a transducer output signal;

a comparator that receives said transducer output signal, and compares a signal indicative of said transducer output signal against a plurality of adjustable threshold values and provides a plurality of comparator output signals each indicative of one of an associated plurality of switching states; and

an output stage that receives said plurality of comparator output signals and encodes switching state information associated with said plurality of comparator output signals to provide on a bi-directional integrated circuit lead an encoded output signal indicative of said state information associated with said plurality of comparator signals.

17.(Previously Amended) The integrated circuit sensor of claim 16, wherein said output stage comprises means for generating said encoded output signal using pulse width modulation, wherein said state information is encoded within said encoded output signal based upon the pulse/pause ratio of said encoded output signal.

18.(Previously Added) The integrated circuit sensor of claim 16, wherein said transducer element comprises a magnetic field transducer that generates and provides said transducer output signal.

19.(Previously Amended) The integrated circuit sensor of claim 16, wherein said comparator comprises hysteresis on each of said predetermined threshold values.

20.(Previously Added) An integrated circuit sensor, comprising:

- a transducer element that provides a transducer output signal;
- an amplifier that receives said transducer output signal and provides an amplified transducer output signal;
- a comparator network that receives said amplified transducer output signal, and compares a signal indicative of said amplified transducer output signal against a plurality of adjustable threshold values to determine a state of said amplified transducer output signal, and provides a plurality of comparator output signals indicative of said state of said amplified transducer output signal; and
- an output stage that receives said plurality of comparator output signals and encodes switching state information associated with said plurality of comparator output signals to provide on a integrated circuit lead an encoded output signal indicative of said state.

21.(Previously Added) The integrated circuit sensor of claim 20, wherein said output stage comprises means for generating said encoded output signal using pulse width modulation, wherein data indicative of said state is encoded within said encoded output signal based upon the pulse/pause ratio of said encoded output signal.

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22.(Previously Added) The integrated circuit sensor of claim 20, wherein said transducer element comprises a magnetic field transducer.

23.(Previously Added) The integrated circuit sensor of claim 21, comprising a control unit that includes a memory device that stores and provides said plurality of adjustable threshold values.

24.(Previously Added) The integrated circuit sensor of claim 22, comprising a control unit that includes a memory device that stores and provides said plurality of adjustable threshold values.

25.(New) The integrated circuit sensor of claim 10, comprising a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

26.(New) The integrated circuit sensor of claim 18, comprising a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

27.(New) The integrated circuit sensor of claim 26, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

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28.(New) The integrated circuit sensor of claim 26, comprising  
means for reading updated predetermined threshold values that are input to said integrated circuit sensor through said integrated circuit lead that also receives said encoded output signal, and for storing said updated predetermined threshold values in said memory device, which provides said updated predetermined threshold values to said comparator for comparison against said input signal.

29.(New) The integrated circuit sensor of claim 26, wherein said output stage receives said plurality of comparator output signals and encodes state information associated with said plurality of comparator output signals to provide an encoded output signal indicative of said state information associated with said plurality of comparator signals.

30.(New) The integrated circuit sensor of claim 22, comprising a control unit that includes a memory device that stores and provides said plurality of predetermined threshold values.

31.(New) The integrated circuit sensor of claim 30, wherein said memory device comprises a read/write memory device that allows said plurality of predetermined threshold values to be changed and stored in said read/write memory device.

32.(New) The integrated circuit sensor of claim 30, comprising  
means for reading updated predetermined threshold values that are input to said integrated  
circuit sensor through said integrated circuit lead that also receives said encoded output signal, and  
for storing said updated predetermined threshold values in said memory device, which provides said  
updated predetermined threshold values to said comparator for comparison against said input signal.

33.(New) The integrated circuit sensor of claim 30, wherein said output stage receives said  
plurality of comparator output signals and encodes state information associated with said plurality of  
comparator output signals to provide an encoded output signal indicative of said state information  
associated with said plurality of comparator signals.

34.(New) The integrated circuit sensor of claim 9, comprising a control unit that includes a  
memory device that stores and provides said plurality of predetermined threshold values.

35.(New) The integrated circuit sensor of claim 34, wherein said memory device comprises a  
read/write memory device that allows said plurality of predetermined threshold values to be changed  
and stored in said read/write memory device.

36.(New) The integrated circuit sensor of claim 34, comprising

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means for reading updated predetermined threshold values that are input to said integrated circuit sensor through said integrated circuit lead that also receives said encoded output signal, and for storing said updated predetermined threshold values in said memory device, which provides said updated predetermined threshold values to said comparator for comparison against said input signal.

37.(New) The integrated circuit sensor of claim 34, wherein said output stage receives said plurality of comparator output signals and encodes state information associated with said plurality of comparator output signals to provide an encoded output signal indicative of said state information associated with said plurality of comparator signals.

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